

1                                   **DIRECT TESTIMONY OF**

2                                   **HUBERT C. YOUNG, III**

3                                   **ON BEHALF OF**

4                                   **SOUTH CAROLINA ELECTRIC & GAS COMPANY**

5                                   **DOCKET NO. 2012-203-E**

6  
7   **Q.   PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION.**

8   A.           My name is Hubert C. Young, III. My business address is 601 Old Taylor  
9           Road, Mail Code J37, Cayce, South Carolina 29033. I am employed by South  
10          Carolina Electric & Gas Company (“SCE&G” or “Company”) where I am the  
11          Manager of Transmission Planning.

12   **Q.   PLEASE   DESCRIBE   YOUR   EDUCATIONAL   AND   BUSINESS**  
13   **BACKGROUND.**

14   A.           I am a graduate of Clemson University with a Bachelor of Science degree in  
15          Electrical and Computer Engineering. I am a registered Professional Engineer in the  
16          State of South Carolina.

17                I began working for SCE&G in 1975. During my thirty-seven years of  
18          service with the Company, I have held a number of positions in the Engineering  
19          Computer Support Department and Transmission Planning. In 1993, I was promoted  
20          to my current position of Manager of Transmission Planning.

1   **Q.    ARE YOU A MEMBER OF ANY INDUSTRY COMMITTEES FOR**  
2   **SYSTEM RELIABILITY ASSESSMENT OR PLANNING?**

3   A.       Yes, I am currently Chairman of the SERC Reliability Corporation (formerly  
4   known as the Southeastern Electric Reliability Council and hereinafter referred to as  
5   “SERC”) Engineering Committee.  Additionally, I am a member of the North  
6   American Electric Reliability Corporation (“NERC”) Planning Committee, the  
7   NERC Reliability Assessment Subcommittee, the Carolinas Transmission Planning  
8   Coordination Agreement Principal Planners Committee, the Eastern Interconnection  
9   Planning Collaborative (“EIPC”) Technical Committee, and the EIPC Stakeholder  
10  Steering Committee Transmission Owner Caucus.  I am also a member of various  
11  other committees related to transmission planning.

12           Integrating the transmission facilities of various entities across the United  
13  States is an important function of transmission planning and cannot be accomplished  
14  without collaboration.  As a result, all these committees are directly involved with  
15  assessing the current and future capabilities of the integrated transmission grid in  
16  North America, the Southeast, and the Virginia/Carolinas or setting reliability  
17  standards for the electric power industry.  Accordingly, it is critical that SCE&G  
18  actively participate on these committees so that its interests along with the interests  
19  of its customers are adequately represented.

1 **Q. PLEASE SUMMARIZE YOUR DUTIES AS MANAGER OF**  
2 **TRANSMISSION PLANNING AT SCE&G.**

3 A. I oversee the planning and associated analyses of the SCE&G electric  
4 transmission system and all interconnection transmission facilities with  
5 neighboring utilities. The goal of transmission planning at SCE&G is to ensure  
6 reliable and cost effective delivery of electric power to SCE&G customers while  
7 developing and maintaining strategically supportive infrastructure to sustain and  
8 further South Carolina's economic development and the Company's financial  
9 integrity.

10 **Q. HAVE YOU EVER TESTIFIED BEFORE THE PUBLIC SERVICE**  
11 **COMMISSION OF SOUTH CAROLINA ("COMMISSION")?**

12 A. Yes, I have testified before the Commission on many occasions. Recently,  
13 I testified in Docket No. 2011-325-E in which I discussed with the Commission the  
14 need and necessity for the construction of the new VCS1-Killian 230 kilovolt ("kV")  
15 Line, the new VCS2-Lake Murray 230 kV Line No. 2, and a segment of the new  
16 VCS2-St. George 230 kV Line No. 1 ("Segment of VCS2-St. George 230 kV Line  
17 No. 1") that runs alongside the VCS2-Lake Murray 230 kV Line No. 2 from the  
18 Company's V.C. Summer Switchyard #2 to the Lake Murray 230/115 kV  
19 Substation. In doing so, I explained that these lines are needed in order to route  
20 power to SCE&G's customers from two new nuclear units that are under  
21 construction at the V.C. Summer Nuclear Station in Jenkinsville, South Carolina  
22 ("Unit 2" and "Unit 3" or collectively the "Units"). In that docket, the Commission

1 granted SCE&G a Certificate of Environmental Compatibility and Public  
2 Convenience and Necessity for the construction and operation of the VCS1-Killian  
3 230 kV Line, the VCS2-Lake Murray 230 kV Line No. 2, and the Segment of VCS2-  
4 St. George 230 kV Line No. 1.

5 **Q. PLEASE DESCRIBE THE PURPOSE OF YOUR DIRECT TESTIMONY.**

6 A. SCE&G continually monitors and reviews its transmission construction cost  
7 forecast related to the Units. Since the issuance of Order No. 2011-345 dated May  
8 16, 2011, issued in Docket No. 2010-376-E, the Company has updated its  
9 transmission construction cost forecast to reflect new developments and detailed  
10 transmission line design in the project, which were not known during the pendency  
11 of Docket No. 2010-376-E. The purpose of my direct testimony in this proceeding  
12 is to present information related to the adjustments to the transmission  
13 construction cost forecast and to explain the necessity of these updates.

14 **Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF THE TRANSMISSION**  
15 **LINES THAT ARE NECESSARY TO CONNECT UNITS 2 AND 3 TO THE**  
16 **GRID.**

17 A. SCE&G has determined that four (4) new 230 kV lines originating at the  
18 V.C. Summer Nuclear Station will be required to route the generated capacity of  
19 the Units to the Company's electric transmission grid. These lines are identified  
20 as follows:

1           1.     **The VCS1-Killian 230 kV Line.** This line is required to route  
2 power from the V.C. Summer plant site to the northeast Columbia area. This line  
3 begins at the existing V.C. Summer Switchyard #1 which is located at the plant  
4 site and terminates at the existing Killian 230/115 kV Substation which is located  
5 in northeast Columbia near the intersection of Interstate 77 and Farrow Road. The  
6 total length of this line is approximately thirty-seven (37) miles and will be routed  
7 entirely within SCE&G's existing rights-of-way except for the Blythewood-  
8 Killian segment (approximately 6 miles), which will be routed along new rights-  
9 of-way.

10           2.     **The VCS2-Lake Murray 230 kV Line No. 2.** This line is required  
11 to route power to the Lexington and Irmo areas. This line will begin at the V.C.  
12 Summer Switchyard #2 which is presently under construction at the plant site. It  
13 will run to the existing Lake Murray 230/115 kV Substation which is located near  
14 the Saluda Hydro and McMeekin Station sites just below the Lake Murray dam.  
15 The total length of this line is approximately twenty-two (22) miles and will be  
16 routed entirely within SCE&G's existing rights-of-way.

17           3.     **The VCS2-St. George 230 kV Line No. 1.** This line is required to  
18 route power to the southern part of SCE&G's electric system, which includes the  
19 Greater Charleston area. The VCS2-St. George 230 kV Line No. 1 will originate  
20 at the V.C. Summer Switchyard #2 and run to the planned St. George 230 kV  
21 Switching Station near St. George, South Carolina. The length of the VCS2-St.  
22 George 230 kV Line No. 1 will be approximately ninety-seven (97) miles. A

1 twenty-two (22) mile segment of the VCS2-St. George 230 kV Line No. 1, for  
2 which the Commission granted SCE&G a Certificate in Order No. 2011-978, will  
3 run alongside the VCS2-Lake Murray 230 kV Line No. 2 between the V.C.  
4 Summer Switchyard #2 and the Lake Murray 230/115 kV Substation.

5 4. **The VCS2-St. George 230 kV Line No. 2.** This line is also  
6 required to route power to the southern part of SCE&G's electric system including  
7 the Greater Charleston area. The VCS2-St. George 230 kV Line No. 2 will  
8 originate at the V.C. Summer Switchyard #2 and run to the planned St. George  
9 230 kV Switching Station near St. George, South Carolina. The VCS2-St. George  
10 230 kV Line No. 2 will extend approximately ninety-four (94) miles in length.

11 In addition to these four (4) new 230 kV lines, SCE&G will also construct  
12 three (3) 230 kV bus ties on the V. C. Summer Nuclear Station site to connect the  
13 existing V.C. Summer Switchyard #1 to the future V.C. Summer Switchyard #2.

14 A depiction of the VCS1-Killian 230 kV Line, the VCS2-Lake Murray 230  
15 kV Line No. 2, the VCS2-St. George 230 kV Line No. 1, the VCS2-St. George  
16 230 kV Line No. 2, and the three (3) bus ties is shown on the map attached hereto  
17 as Exhibit No. \_\_ (HCY-1). The total combined circuit length of the four new  
18 SCE&G lines will be approximately 250 circuit miles which will be built along  
19 153 corridor miles of right-of-way.

1 **Q. WHAT IS THE CURRENT STATE OF WORK ON THE NEW**  
2 **TRANSMISSION LINES?**

3 **A. VCS1-Killian 230 kV Line** – In early January 2012, in accordance with  
4 Order No. 2011-978, SCE&G began construction on the VCS1-Killian 230 kV  
5 Line. As of June 30, 2012, approximately forty percent (40%) of the VCS1-  
6 Killian 230 kV Line is complete.

7 **VCS2-Lake Murray 230 kV Line No. 2 and Segment of the VCS2-St.**  
8 **George 230 kV Line No. 1** – In May 2012, and in accordance with Order No.  
9 2011-978, SCE&G began construction on the VCS2-Lake Murray 230 kV Line  
10 No. 2. The Segment of the VCS2-St. George 230 kV Line No. 1 which extends  
11 from V.C. Summer Switchyard #2 to the Lake Murray 230/115 kV Substation is  
12 being constructed concurrently with the VCS2-Lake Murray 230 kV Line No. 2.  
13 As of June 30, 2012, line construction is approximately five percent (5%)  
14 complete.

15 **Remaining Segment of VCS2-St. George 230 kV Line No. 1 and the**  
16 **VCS2-St. George 230 kV Line No. 2** – The Company has not yet commenced  
17 construction of these lines. On June 1, 2012, SCE&G filed an application,  
18 pursuant to the Utility Facility Siting and Environmental Protection Act, with the  
19 Commission seeking the issuance of a Certificate of Environmental Capability and  
20 Public Convenience and Necessity for these lines (excluding the Segment of  
21 VCS2-St. George 230 kV Line No. 1) and associated facilities. The Commission  
22 scheduled a hearing on this matter for August 22, 2012.

1 **Q. WHEN ARE THE NEW TRANSMISSION LINES SCHEDULED TO BE**  
2 **COMPLETED?**

3 A. The VCS1-Killian 230 kV Line, VCS2-Lake Murray 230 kV Line No. 2,  
4 and Segment of VCS2-St. George 230 kV Line No. 1 is scheduled to be completed  
5 by December 31, 2014. Subject to Commission approval in Docket No. 2012-  
6 225-E, the remainder of the VCS2-St. George 230 kV Line No. 1 and the VCS2-  
7 St. George 230 kV Line No. 2 is scheduled to be completed by May 1, 2017;  
8 however, an approximately seven (7) mile segment of the VCS2-St. George 230  
9 kV Line No. 2 that will serve as the power source for the new Saluda River  
10 230/115 kV Transmission Substation (“SRT Substation”), which I discuss later in  
11 my testimony, is scheduled to be completed by May 31, 2015.

12 **Q. PLEASE PROVIDE THE COMMISSION WITH AN OVERVIEW OF THE**  
13 **ADJUSTMENTS TO SCE&G’S TRANSMISSION CONSTRUCTION COST**  
14 **FORECAST.**

15 A. In Order No. 2009-104(A) and Order No. 2011-345, the Commission  
16 approved a transmission construction cost forecast for SCE&G totaling  
17 \$321,591,000. In its request in this proceeding, the Company is seeking to adjust  
18 its Commission-approved transmission construction cost forecast in the net  
19 amount of \$7,921,000. A breakdown and description of the specific adjustments  
20 is set forth in the table on the following page of my direct testimony.

No.	Adjustment Description	Amount
1	Construct SRT Substation	\$1,591,000
2	Transmission Line Construction	\$3,624,000
3	Upgrades to Various Substation Equipment	\$2,712,000
4	Real Property Acquisitions	\$1,383,000
5	Reallocation of Costs between SCE&G and Santee Cooper	(\$1,389,000)
<b>Total</b>		<b>\$7,921,000</b>

**Q. WHY HAVE THESE ADJUSTMENTS NOT BEEN PRESENTED TO THE COMMISSION BEFORE NOW?**

A. The adjustments stated above and described in more detail in my testimony have not been presented to the Commission before now because they were not known. SCE&G's prior transmission construction cost forecast was based on estimates that were supported by early, conceptual designs. As the transmission projects have progressed and more comprehensive information has become available, certain additional projects have been identified as necessary for safety, reliability or operational purposes.

**ADJUSTMENT NO. 1**  
**CONSTRUCT SRT SUBSTATION**

**Q. PLEASE EXPLAIN THE COMPANY'S DECISION TO CONSTRUCT THE SRT SUBSTATION.**

A. The electric load for the Lexington and Irmo areas is currently supported by the Lake Murray 230/115 kV Substation as well as the McMeekin and Saluda Hydro 115 kV generations. The electric load for the downtown Columbia area is supported by the Lyles 230/115 kV Substation, the Denny Terrace 230/115 kV

1 Substation and other sources. SCE&G's original transmission plans and system  
2 needs anticipated that the new transmission lines would be constructed along  
3 green-field routes. As Mr. Byrne explained in his direct testimony, the Company  
4 employed a macro-corridor approach to siting and identifying potential  
5 transmission line routes and their environmental effects in its Environmental  
6 Report supporting the Company's Combined Operating License Application. That  
7 is to say, SCE&G identified the county-by-county corridors through which the  
8 transmission lines supporting the Units would run. The specific location of the  
9 line routes within the macro-corridors would be identified later in the process after  
10 formal siting and detailed engineering studies were completed.

11 The option of constructing the new transmission lines along these identified  
12 green-field routes required the Company to install an additional 336 megavolt  
13 amperes ("MVA"), 230/115 kV autotransformer at its Lake Murray 230/115 kV  
14 Substation and its Denny Terrace 230/115 kV Substation which would distribute  
15 the additional output supplied by the new Units to the Lexington, Irmo and  
16 Columbia areas. SCE&G anticipated that the cost for the additional  
17 autotransformers would total approximately \$13,900,000 in 2007 dollars.

18 In response to scheduling considerations and comments received from  
19 several state and federal agencies indicating a strong preference for the use of  
20 existing right-of-way corridors for the new transmission lines, SCE&G began to  
21 investigate how the Company could use its existing transmission line rights-of-  
22 way to the maximum extent practicable for the four (4) new SCE&G 230 kV lines

1 associated with Units 2 and 3. The subsequent decision to build the new 230 kV  
2 lines on existing rights-of-way and the location of these rights-of-way allowed for  
3 new options to be considered for distributing the power output of Unit 2 to the  
4 Lexington, Irmo and Columbia areas. As a result, the Company concluded that it  
5 would be more economical, practical and beneficial to system reliability to  
6 construct the new SRT Substation rather than to construct additional  
7 autotransformers at its Lake Murray 230/115 kV Substation and its Denny Terrace  
8 230/115 kV Substation as originally planned.

9 **Q. WAS THE OPTION OF CONSTRUCTING THE SRT SUBSTATION**  
10 **FEASIBLE IN 2008?**

11 A. No. As I have testified, the Company's original plans anticipated that the  
12 transmission lines would be constructed along green-field routes that did not pass  
13 near the location of the future SRT Substation. By following this green-field  
14 route, the new transmission lines would not follow a route that would allow for the  
15 construction of the SRT Substation. Under the green-field route option, the only  
16 feasible option available to the Company for delivering the Units' power to the  
17 Lexington, Columbia, and Irmo areas was to add additional autotransformers at  
18 the Lake Murray and Denny Terrace Substations.

19 **Q. WHERE WILL THE SRT SUBSTATION BE LOCATED?**

20 A. The SRT Substation will be built on approximately fifty (50) acres of land  
21 in Lexington County, South Carolina. The property fronts Davega Road just south  
22 of Interstate Highway 20 between the Bush River Road and U.S. Highway 378

1 interchanges. SCE&G anticipates clearing approximately fifteen (15) acres to  
2 develop final grade for the substation. The remainder of the property will remain  
3 a wooded area and will provide screening of the substation from surrounding  
4 areas. Attached to my testimony as Exhibit No. \_\_\_\_ (HCY-2) is a map which  
5 depicts in general terms the site and location of the future SRT Substation.

6 **Q. WHEN ANALYZING THE CONSTRUCTION OF A NEW 230/115 KV**  
7 **SUBSTATION DID SCE&G CONSIDER ANY OTHER ALTERNATIVES?**

8 A. Yes. The first alternative considered was the original plan to construct an  
9 additional 336 MVA autotransformer at both the Lake Murray and Denny Terrace  
10 230/115 kV Substations. The existing Lake Murray and Denny Terrace substation  
11 sites are not large enough to accommodate the additional autotransformer. As  
12 such, this alternative would require the construction of a second 230/115 kV  
13 substation near each existing site to accommodate the additional autotransformer  
14 at each location. This alternative also would require installing another 336 MVA  
15 autotransformer at the Lyles 230/115 kV Substation and upgrading the conductor  
16 on three existing 115 kV lines.

17 The second alternative would require adding another autotransformer at the  
18 Lyles 230/115 kV Substation and rebuilding the Edenwood-Lake Murray 230 kV  
19 Line.

1 **Q. IS CONSTRUCTING THE SRT SUBSTATION PREFERABLE TO**  
2 **CONSTRUCTING ADDITIONAL AUTOTRANSFORMERS?**

3 A. Yes. As testified above, at the outset of this project in 2007, SCE&G  
4 planned to construct additional autotransformers at the Lake Murray and Denny  
5 Terrace Substations; however, in the design phase of these projects it was  
6 determined that the Lake Murray and Denny Terrace substations were not large  
7 enough to accommodate the additional autotransformers. As a result, SCE&G  
8 modified this alternative to include the construction of new substations adjacent to  
9 the existing Lake Murray and Denny Terrace Substations in order to accommodate  
10 the additional autotransformers. SCE&G also determined that an additional  
11 autotransformer would be required at the Lyles Substation. The construction of  
12 two new substations along with the addition of another autotransformer at the  
13 Lyles Substation adds significant costs to this alternative and also places numerous  
14 transformers in a single location which creates reliability and operational  
15 concerns. With the decision to locate the new 230 kV lines on existing rights-of-  
16 way, the new VCS2-St George 230 kV lines are now passing through the Irmo,  
17 Lexington and West Columbia areas where the new transformer capability is  
18 needed. This decision allowed additional options for locating the required  
19 autotransformer capability, including the site of the proposed SRT Substation.  
20 Additional studies considering these new options determined that the SRT  
21 Substation option provided all the reliability and operational requirements and was

less costly when compared to the updated cost associated with the Lake Murray, Denny Terrace, and Lyles autotransformer alternative.

**Q. WHAT DID THE COMPANY CONCLUDE?**

A. SCE&G refreshed its estimates and concluded that it would cost approximately \$27,800,000 in 2007 dollars to construct the additional autotransformers. Not only was the construction of the new SRT Substation preferable to constructing additional autotransformers from a reliability perspective, the construction of the new SRT Substation was the least cost alternative available to the Company.

**Q. WHAT IS THE ESTIMATED COST TO CONSTRUCT THE SRT SUBSTATION AND ASSOCIATED PROJECTS?**

A. For Base Load Review Act purposes, the cost to construct the new SRT Substation in 2007 dollars is approximately \$15,500,000. This cost includes the following:

1. Substation Construction;
2. Site Acquisition;
3. Connecting the Saluda Hydro-Williams Street 115 kV Line to the SRT Substation, which creates the Saluda Hydro-SRT 115 kV Line and the SRT-Williams Street 115 kV Line;
4. Connecting the Lake Murray-Lyles 115 kV Line to the SRT Substation, which creates the Lake Murray-SRT 115 kV Line and the SRT-Lyles 115 kV Line;
5. Upgrade of the SRT-Lyles 115 kV Line; and

1           6.     Addition of a 230 kV terminal at the Lake Murray 230/115kV  
2                 Substation.  
3

4           There are additional costs associated with the construction of the SRT  
5     Substation. However, these costs are classified as system improvement costs, and  
6     therefore SCE&G is not seeking recovery of these costs under the Base Load  
7     Review Act. At the appropriate time, SCE&G will present the costs classified as  
8     system improvement costs to the Commission for its review and approval.

9     **Q.     WHY IS THE UPGRADE OF THE SRT-LYLES 115 kV LINE NEEDED?**

10    A.       The SRT-Lyles 115 kV Line will be upgraded to 1272 ACSR conductor  
11       which is a higher capacity conductor. This upgrade is required to distribute the  
12       power from V.C. Summer Unit 2 to the Columbia load center without violating  
13       any NERC or SCE&G Internal Planning Criteria. Without the upgrade, the  
14       existing conductor on this line will overload for certain events/outages on the  
15       transmission system. The resulting system condition would not meet the  
16       transmission requirements of NERC or SCE&G.

17    **Q.     WHAT IS THE PROJECTED IN-SERVICE DATE FOR THE SRT**  
18       **SUBSTATION?**

19    A.       The projected in-service date for the SRT Substation is May 31, 2015.

20    **Q.     PLEASE RECONCILE THE COST OF THE ADDITIONAL**  
21       **AUTOTRANSFORMERS WITH THE COST OF THE SRT SUBSTATION.**

22    A.       As I testified earlier, the Commission-approved cost to construct additional  
23       autotransformers at the Lake Murray and Denny Terrace Substations without

1 constructing the necessary additional substations at those sites to accommodate the  
2 autotransformers is approximately \$13,900,000 in 2007 dollars. SCE&G later  
3 refreshed its estimates and concluded that it would cost approximately  
4 \$27,800,000 in 2007 dollars to construct the additional  
5 autotransformers/substations. By constructing the new SRT Substation, the need  
6 for the additional autotransformers no longer exists. Therefore, SCE&G plans to  
7 apply the \$13,900,000 previously approved for the additional autotransformers to  
8 the cost of constructing the new SRT Substation, which is \$15,500,000.  
9 Accordingly, SCE&G has increased its transmission cost forecast in the amount of  
10 \$1,591,000.

11 **Q. IS THE ADDITION OF THE SRT SUBSTATION REASONABLE AND**  
12 **PRUDENT?**

13 A. Yes, it is. These costs reflect a prudent and valuable investment that the  
14 Company is making in this project.

15 **ADJUSTMENT NO. 2**  
16 **TRANSMISSION LINE CONSTRUCTION**  
17

18 **Q. PLEASE IDENTIFY THE SCOPE OF WORK IDENTIFIED AS**  
19 **TRANSMISSION LINE CONSTRUCTION.**

20 A. The updated costs for Transmission Line Construction reflect SCE&G's  
21 decision to underground a section of the existing Parr-VCSN Safeguard 115 kV  
22 line where that line would have crossed multiple 230 kV transmission lines.  
23 Transmission Line Construction also reflects the lowering of the Parr-Midway 115

1 kV Lines. These lines must be lowered to allow the VCS2-Lake Murray 230 kV  
2 Line No. 2, the VCS2-St. George 230 kV Line No. 1, the VCS2-St. George 230  
3 kV Line No. 2, and other 230 kV lines to meet required minimum National  
4 Electric Safety Code crossing clearances.

5 **Q. PLEASE EXPLAIN SCE&G'S DECISION TO UNDERGROUND A**  
6 **SEGMENT OF THE EXISTING PARR-VCSN SAFEGUARD 115 KV LINE.**

7 A. The Parr-VCSN Safeguard 115 kV Line currently provides back-up power  
8 to the safety-related components of Unit 1 at the V.C. Summer Station site.  
9 SCE&G considers this line to be a critical component for the safe operation of  
10 Unit 1 because its serves to provide back-up power to Unit 1. Currently, the Parr-  
11 VCSN Safeguard 115 kV Line crosses over one (1) 230 kV line and two (2) 115  
12 kV lines. By constructing the new switchyard, the new 230 kV transmission lines  
13 along existing rights-of-way and reconnecting other existing transmission lines to  
14 the new switchyard, SCE&G's design plans would require the Parr-VCSN  
15 Safeguard 115 kV Line to cross over five (5) 230 kV transmission lines.

16 SCE&G has evaluated the Parr-VCSN Safeguard 115 kV Line and its  
17 relation to the configuration of the five (5) 230 kV transmission lines that it would  
18 cross. During this evaluation, the Company identified reliability and safety issues  
19 concerning the multiple 230 kV lines which the 115 kV safeguard line would  
20 cross. To alleviate these reliability and safety concerns, a short segment of the  
21 Parr-VCSN Safeguard 115 kV Line will be rebuilt underground at the site of these  
22 multiple crossings.

1 **Q. PLEASE BRIEFLY EXPLAIN THE RELIABILITY AND SAFETY**  
2 **CONCERNS IDENTIFIED BY SCE&G.**

3 A. As I testified earlier, the Parr-VCSN Safeguard 115 kV Line would cross  
4 above several other planned 230 kV transmission lines at the plant site. If a pole  
5 or insulator supporting the Parr-VCSN Safeguard 115 kV Line failed at or near the  
6 crossing, then the Parr-VCSN Safeguard 115 kV Line could fall onto the  
7 transmission lines that it crosses over causing the transmission lines to fault and to  
8 be removed from service by breaker operations. The worst scenario would be if  
9 the 115 kV line fell and came to a rest on the 230 kV lines at the crossing without  
10 falling off during the fault and circuit breaker sequence of operations. This  
11 scenario would result in the failed Parr-VCSN Safeguard 115 kV Line continuing  
12 to fault the 230 kV lines until the circuit breakers operated through their reclose  
13 cycle. After all reclose attempts, the Parr-VCSN Safeguard 115 kV Line and all  
14 the 230 kV lines would lock out of service. The result would be a major event on  
15 the system possibly causing loss of service to a large number of customers. For  
16 these reasons, it is necessary that a segment of the Parr-VCSN Safeguard 115 kV  
17 Line be placed underground.

18 **Q. WHAT IS THE ESTIMATED COST TO UNDERGROUND THE PARR-**  
19 **VCSN SAFEGUARD 115 KV LINE?**

20 A. It will cost approximately \$2,920,000 in 2007 dollars to underground this  
21 segment of the line.

1 **Q. PLEASE EXPLAIN SCE&G'S DECISION TO LOWER THE PARR-**  
2 **MIDWAY 115 KV LINES.**

3 A. As I testified earlier, the VCS2-Lake Murray 230 kV Line No. 2 and the  
4 VCS2-St. George 230 kV Line No. 1 originate at the V.C. Summer Switchyard #2.  
5 In addition, one existing and one future Santee Cooper 230 kV line, and three  
6 other SCE&G 230 kV lines—two of which ultimately connect to Duke Energy's  
7 system—will originate or terminate at V.C. Summer Switchyard #1 or #2. These  
8 seven (7) 230 kV lines must cross over the Parr-Midway 115 kV Lines to reach  
9 their respective termination points. If the Parr-Midway 115 kV Lines are not  
10 lowered, then aspects of these lines would require significant design  
11 considerations to meet National Electric Safety Code crossing clearances.  
12 Accordingly, lowering the Parr-Midway 115 kV Lines is the most cost effective  
13 solution.

14 **Q. WHAT IS THE COST TO LOWER THE PARR-MIDWAY 115 KV LINES?**

15 A. It cost \$704,000 in 2007 dollars to lower the Parr-Midway 115 kV Lines.

16 **Q. IS THE UNDERGROUNDING OF THE PARR-VCSN SAFEGUARD 115**  
17 **KV LINE AND THE LOWERING OF THE PARR-MIDWAY 115 KV**  
18 **LINES REASONABLE AND PRUDENT?**

19 A. Yes. For the reasons provided earlier in my testimony, these costs reflect a  
20 prudent and valuable investment that the Company is making in this project.

**ADJUSTMENT NO. 3**  
**UPGRADES TO VARIOUS SUBSTATION EQUIPMENT**

**Q. WHAT SCOPES OF WORK ARE INCLUDED WITHIN ADJUSTMENT NO. 3?**

A. The scopes of work included within Adjustment No. 3 consist of the replacement of a disconnect switch in the V.C. Summer Switchyard #1 and various improvements at three (3) substations.

**Q. PLEASE EXPLAIN THE ADJUSTMENT CONCERNING THE REPLACEMENT OF A DISCONNECT SWITCH IN THE SWITCHYARD.**

A. SCE&G must replace a bus side disconnect switch in the V.C. Summer Switchyard #1 along with the existing lightning arresters. Today, the existing disconnect switch does not have the power current rating necessary to function properly when Units 2 and 3 become operational. As a result, SCE&G must upgrade the existing disconnect switch. In addition, the existing lightning arresters must be upgraded. With higher capacity lines being installed to accommodate the power flows of Units 2 and 3, the replacement of the disconnect switch must occur; otherwise, the disconnect switch would be the most limiting component of the transmission line resulting in a de-rating of the line.

**Q. WHAT IS THE COST FOR THIS SCOPE OF WORK?**

A. The replacement of the disconnect switch in the V.C. Summer Switchyard #1 is \$614,000.

1   **Q.   PLEASE EXPLAIN THE IMPROVEMENTS REQUIRED AT THE THREE**  
2   **SUBSTATIONS.**

3   A.           SCE&G must make improvements at three (3) of its existing substations –  
4           all of which are necessary to interconnect the new transmission lines with  
5           SCE&G's existing system in a safe and reliable manner.

6           At SCE&G's Canadys 230 kV Substation, the Company must upgrade the  
7           bus and terminal to St. George. The Canadys-St.George 230 kV transmission line  
8           will be rebuilt/upgraded with bundled 1272 ACSR conductor. The existing bus  
9           and the terminal for this line at the Canadys Substation does not have the power  
10          current rating necessary to function properly when this new equipment is installed.  
11          Therefore, SCE&G must upgrade the bus and breaker line terminal power current  
12          rating at its Canadys Substation to accommodate the bundled 1272 ACSR  
13          conductor.

14          At SCE&G's Summerville 230 kV Substation, the Company must upgrade  
15          the terminal to St. George. The Summerville-St. George 230 kV transmission line  
16          will be rebuilt/upgraded with bundled 1272 ACSR conductor. The existing  
17          terminal for this line at the Summerville Substation does not have the power  
18          current rating necessary to function properly when this new equipment is installed.  
19          Therefore, SCE&G must upgrade the breaker line terminal power current rating at  
20          its Summerville Substation to accommodate the bundled 1272 ACSR conductor.

21          At SCE&G's Saluda Hydro Substation, the Company must upgrade two (2)  
22          terminals to Newberry. The Saluda Hydro-Newberry 115 kV transmission lines

1 will be rebuilt/upgraded to 1272 ACSR conductor. The existing terminals for  
2 these lines at the Saluda Hydro Substation do not have the power current rating  
3 necessary to function properly when this new equipment is installed. Therefore,  
4 SCE&G must upgrade two terminals at its Saluda Hydro Substation to  
5 accommodate the upgraded lines.

6 **Q. WHAT IS THE ESTIMATED COST FOR THIS SCOPE OF WORK?**

7 A. This estimated cost for this scope of work is \$2,098,000.

8 **Q. ARE THE COSTS TO REPLACE THE DISCONNECT SWITCH AND THE**  
9 **COSTS FOR THE BUS AND TERMINAL UPGRADES REASONABLE**  
10 **AND PRUDENT?**

11 A. Yes. These costs reflect a prudent and valuable investment that the  
12 Company is making in this project.

13 **ADJUSTMENT NO. 4**  
14 **REAL PROPERTY ACQUISITIONS**  
15

16 **Q. PLEASE DESCRIBE THE ADJUSTMENT RELATED TO REAL**  
17 **PROPERTY ACQUISITIONS.**

18 A. This adjustment consists of the purchase of rights-of-way to construct the  
19 Blythewood-Killian Segment of the VCS1-Killian 230 kV Line and the settlement  
20 amounts paid to Richland County and the Town of Blythewood in Docket No.  
21 2011-325-E.  
22

1   **Q.   PLEASE EXPLAIN THE NEED TO ADJUST THE TRANSMISSION COST**  
2       **FORECAST CONCERNING THE BLYTHEWOOD-KILLIAN SEGMENT.**

3   A.       As I testified earlier, the Blythewood-Killian Segment of the VCS1-Killian  
4       230 kV Line is the only portion of the line which will be constructed along new  
5       rights-of-way; therefore, SCE&G must purchase new rights-of-way to construct  
6       this segment of the line. In formulating its initial transmission cost forecast, the  
7       exact route for the Blythewood-Killian Segment was not known. As a result, the  
8       costs associated with this segment of the line were based on estimated routing,  
9       length, and right-of-way needs. Since the formation of the initial transmission cost  
10      forecast, SCE&G has completed its formal siting process for the Blythewood-  
11      Killian Segment and identified the actual route for this portion of the VCS1-  
12      Killian 230 kV Line. After identifying the actual route, SCE&G updated its  
13      forecast of right-of-way acquisition costs. Based upon the foregoing, SCE&G has  
14      increased its transmission cost forecast in the amount of \$369,000 for the  
15      necessary rights-of-way for the Blythewood-Killian Segment.

16   **Q.   HAS SCE&G SECURED ALL THE RIGHTS-OF-WAY ALONG THE**  
17       **BLYTHEWOOD-KILLIAN SEGMENT?**

18   A.       The Company has secured access to all property along the Blythewood-  
19      Killian Segment; however, SCE&G had to initiate several condemnation actions  
20      against certain landowners to secure this access. While SCE&G has secured  
21      access to these properties, the purchase price for these rights-of-way has not yet  
22      been finalized. Therefore, it is possible that a court may issue an order requiring

1 SCE&G to pay more for the rights-of-way than expected. If this were to occur,  
2 then the Company would be required to return to the Commission to further adjust  
3 this portion of its transmission cost forecast.

4 **Q. PLEASE EXPLAIN THE SETTLEMENT AMOUNTS PAID TO**  
5 **RICHLAND COUNTY AND THE TOWN OF BLYTHEWOOD IN**  
6 **DOCKET NO. 2011-325-E AND IN DOING SO, PLEASE EXPLAIN WHY**  
7 **THE SETTLEMENT AMOUNTS SHOULD BE INCLUDED IN THE**  
8 **TRANSMISSION CONSTRUCTION COST BUDGET.**

9 A. In Docket No. 2011-325-E, SCE&G entered into a Settlement Agreement  
10 with Richland County and a Settlement Agreement with the Town of Blythewood.  
11 Pursuant to the Settlement Agreement with Richland County, SCE&G, among  
12 other things, agreed to pay the County \$1,000,000. Pursuant to the Settlement  
13 Agreement with the Town of Blythewood, SCE&G, among other things, agreed to  
14 pay the Town \$450,000. Both Settlement Agreements resolved all issues and  
15 contentions raised by the County and the Town; and in consideration of the  
16 Settlement Agreements, both the County and the Town agreed to support the  
17 issuance of a Certificate of Environmental Compatibility and Public Convenience  
18 and Necessity as requested by SCE&G in its Application in Docket No. 2011-325-  
19 E.

20 Prior to entering into the Settlement Agreement with Richland County, the  
21 County was actively opposing the route selected by SCE&G for the Blythewood-  
22 Killian Segment of the VCS1-Killian 230 Line. If Richland County had been

1 successful in its efforts opposing the route for the Blythewood-Killian Segment  
2 (approximately six miles), then SCE&G would have been required to re-route and  
3 construct this segment of the VCS1-Killian 230 kV Line along existing rights-of-  
4 way and pursue an alternate route for the Blythewood-Killian 115 kV Line which  
5 would have cost SCE&G an additional \$6,300,000. By entering into a Settlement  
6 Agreement with Richland County, SCE&G avoided this potential additional  
7 expense for its customers.

8 Prior to entering into the Settlement Agreement with the Town of  
9 Blythewood, the Town was actively opposing a section of the proposed  
10 Winnsboro-Blythewood Segment of the VCS1-Killian 230 kV Line. The section  
11 of the line in dispute crossed the intersection of Blythewood Road and Northbound  
12 Interstate 77 at Exit 27. This area is commonly referred to as the “Gateway to  
13 Blythewood.” In its opposition, the Town argued that SCE&G should either  
14 underground this section of the line or re-route the line along a different route and  
15 away from the Gateway to Blythewood. If the Town had been successful in its  
16 efforts requiring SCE&G to underground this section of the line, SCE&G  
17 estimated that it would have cost approximately \$26,000,000 to comply with the  
18 Town’s request. On the other hand, if SCE&G had been required to re-route this  
19 section of the line away from the Gateway to Blythewood, then the issuance of the  
20 Combined Operating License (COL) for the new nuclear units could have been  
21 placed in jeopardy because SCE&G would be routing the line in a manner  
22 inconsistent with the transmission line route description set forth in the

1 Environmental Report. The Environmental Impact Statement for the new nuclear  
2 units is based upon the Environmental Report and supplemental information and  
3 the COL is based on the Environmental Impact Statement. In addition to the  
4 endangerment to the issuance of the Combined Operating License, the re-routing  
5 of this section of the line in the manner recommended by the Town would have  
6 cost at least \$2,000,000. By entering into a Settlement Agreement with the Town  
7 of Blythewood, SCE&G avoided this risk to the COL and these potential  
8 additional expenses for its customers.

9 **Q. WITH REGARD TO THE SETTLEMENT AMOUNTS PAID TO**  
10 **RICHLAND COUNTY AND THE TOWN OF BLYTHEWOOD, HOW**  
11 **MUCH IS SCE&G ADJUSTING ITS TRANSMISSION COST FORECAST?**

12 A. The Company is not including the full settlement amounts within its  
13 transmission cost forecast which is consistent with the commitment SCE&G made  
14 to the Commission in Docket No. 2008-196-E and approved in Commission Order  
15 No. 2009-104(A). In that docket, I testified that SCE&G intended to route the  
16 VCS1-Killian 230 kV Transmission Line in such a manner to better serve the  
17 growth along the Interstate 77 corridor or north Columbia. I further testified that  
18 because SCE&G was routing the line in this manner that only 74.2% of the costs  
19 associated with the VCS1-Killian 230 kV Transmission Line would be included in  
20 the transmission cost forecast under the Base Load Review Act. Accordingly,  
21 SCE&G is adjusting its transmission cost forecast in the amount of \$1,014,000 in  
22 2007 dollars for the settlement amounts paid to Richland County and the Town of

1 Blythewood. In keeping with the Company's commitment to the Commission and  
2 in compliance with Commission Order No. 2009-104(A), this amount represents  
3 74.2% of the settlement amounts.

4 **Q. IS THE COST FOR THE REAL PROPERTY ACQUISITIONS**  
5 **REASONABLE AND PRUDENT?**

6 A. Yes, it is. These costs reflect a prudent and valuable investment that the  
7 Company is making in this project.

8 **ADJUSTMENT NO. 5**  
9 **REALLOCATION OF COSTS BETWEEN SCE&G**  
10 **AND SANTEE COOPER**  
11

12 **Q. PLEASE EXPLAIN THE ADJUSTMENT CONCERNING THE**  
13 **REALLOCATION OF COSTS AMONG SCE&G AND SANTEE COOPER.**

14 A. As the Commission is aware, SCE&G jointly owns the Units with Santee  
15 Cooper. SCE&G's ownership share is 55%, and Santee Cooper's ownership share  
16 is 45%. In addition to jointly owning the Units, SCE&G and Santee Cooper also  
17 jointly own the V.C. Summer Switchyard #1, V.C. Summer Switchyard #2, and  
18 several other transmission assets at or near the project site. As a result, SCE&G  
19 and Santee Cooper share in the costs associated with these assets. Recently,  
20 SCE&G and Santee Cooper re-evaluated their ownership of these assets and  
21 agreed to a new methodology for allocating costs among the two companies.  
22 Instead of assigning individual terminals, switches and other items of property  
23 between SCE&G and Santee Cooper, we decided to allocate the full costs of each

1 switchyard based upon a percentage reflecting each company's use of the  
2 equipment. As a result of this new methodology, SCE&G's share of transmission  
3 costs decreased.

4 **Q. WHAT IS THE IMPACT OF THIS ADJUSTMENT ON THE**  
5 **TRANSMISSION CONSTRUCTION COST BUDGET?**

6 A. The impact of this adjustment results in a \$1,389,000 decrease to the  
7 transmission construction cost budget.

8 **CONCLUSION**

9 **Q. ARE THE ADJUSTMENTS REQUESTED IN THIS PROCEEDING**  
10 **REASONABLE AND PRUDENT?**

11 A. Yes. All the adjustments discussed in my direct testimony are reasonable  
12 and prudent costs necessary to construct the transmission lines associated with the  
13 Units.

14 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

15 A. Yes.